BEFORE STREAMS, RIVERS RISE

Predicting Floods Simple With Computers

FORT WORTH (UPI)— Forecasting floods on rivers and creeks used to be an educated guess process, based on sporadic reports from volunteer observers. As a result, many floods turned out to be complete surprises.

But now hydrologists at the U.S. Weather Bureau's forecast center in Fort Worth can predict floods before streams and rivers start to rise. They can almost predict floods—if there are going to be any — when it starts to rain.

The reason is that a computer system helps hydrologists do the predicting.

In an experimental electronic forecasting program, radar at the Fort Worth Weather Bureau sweeps a 30,000 square mile area in Texas and western Louisiana.

Measures Rainfall

Radar measures the amount of rain falling at any time in more than 14,000 points and feeds the information into an IBM 1130 computer.

The computer then calculates the total volume of rain that will fall, how much water will run off and into what rivers it will flow. The computer compares the information with the rivers' capacity.

If there is any danger of a flood, the computer tells where and when.

"Such precise forecasting, like the kind we are experimenting with, is a huge number keeping task which cannot be done manually," Vic Hoffman, hydrologist-in-charge at the Fort Worth forecast center said.

Hoffman said conventional flood forecasting is based upon readings of volunteer observers, a system which is far from satisfactory.

Forecasting Not Precise

"These observers may read their rain gauges one or several times a day," Hoffman said. "Because the reports come from widely separated areas and are sporadic, we have not been able to be precise in our forecasting.

"Accuracy in forecasting depends upon accuracy in rainfall reports. The more information we receive on local rainfall, the greater our forecasting precision."

During the spring and fall, when floods are most likely, the Fort Worth forecast center provides other weather offices with stream forecasts over six hours. The forecasts covered several hundred points along 10 rivers which flow into the Gulf of Mexico.

The Fort Worth office is one of 11 regional forecast centers in the country. It soon will begin to predict potential flooding in New Mexico from snow melt in the mountains.

Goals Outlined

"Ultimately we hope to use our experimental system to predict floods wherever they may occur in the Southwest including the high snow melt areas, the desert and the swamps," Hoffman said.

Flood forecasting is one of the new uses to which the Weather Bureau is putting computers.

After Hurricane Beulah devastated the South Texas coast in 1967, the International Boundary Commission at El Paso collected a mass of data on the storm, its damage and its effects on the Rio Grande.

With this information, engineers for the commission created an electronic model of Beulah in a computer.

Changes Studied

By simulating Beulah on the computer, the engineers and weather experts sought to determine what changes could be made in the Rio Grande flood control system to provide greater protection.

By simulation, they could even test the adequacy of proposed changes.

Texas State Water Survey scientists are using a computer to analyze storm profiles in an attempt to develop ways of controlling or preventing crop killing hailstorms. Almost every year hail devastates crops somewhere in Texas.

"We're trying to identify hail bearing storms as they develop," S. A. Changnon Jr., one of the men involved in the Illinois research, said.

Detecting Hailstorms

"Advance identification is an obvious necessity for any sort of control that would hope to reduce crops and property damage. Ability to detect incipient hailstorms would be useful in aircraft avoidance and for public warnings.

"Last year, hail did $284 million worth of damage nationwide. If a fraction of that could be saved by advance warnings and by hoped for control techniques our work will have been more than worthwhile."

As example of such control techniques is cloud seeding. Planes would fly around developing storms and seed them with silver iodide. In theory, hailstones would remain small and melt before reaching the ground.

ELEPHANT JOKES are pretty old now, but maybe Prince Aya just heard a new one. The 4-year-old son of Japan's crown prince and princess seemed to enjoy his first trip to a Tokyo zoo.

LOVE LORN

PORT MORESBY, New Guinea (AP) — Piake Kitakita set her cap for a village leader then went off into the Papuan jungle in a huff when he rejected her.

Her friends at Mumuni village in the northwest of the Western District searched, but failed to find her. That was nine years ago.

Recently, a Mumuni hunting party came upon a woman and recognized her as the long-lost Piake Kitakita. They overpowered her and marched triumphantly home.

But the story ended sadly.

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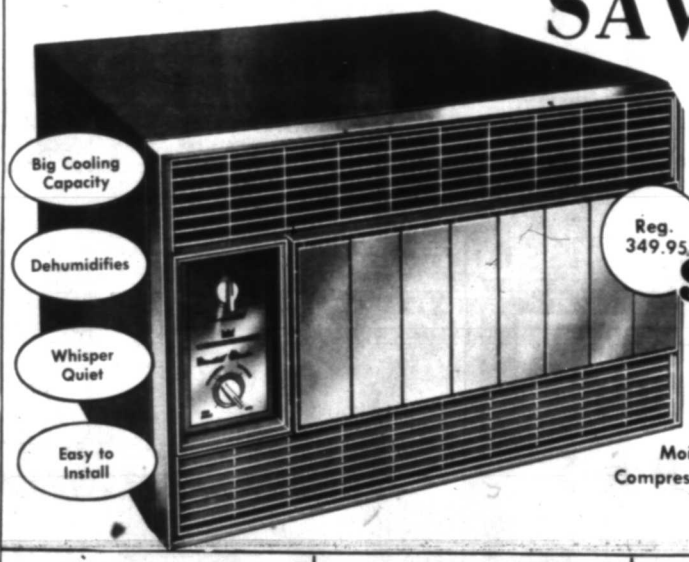

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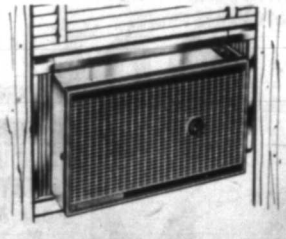

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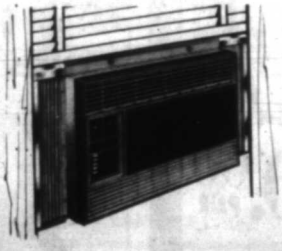

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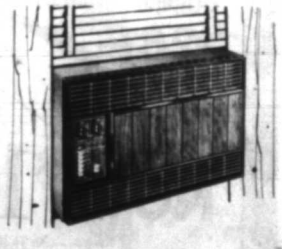

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